What Is Claimed As New And Is Intended To Be Secured By Letters Patent Is:

1. An aqueous dispersion , comprising:

a silicon dioxide powder having a silicon dioxide content of 10 to 60 wt.%, wherein the aqueous dispersion is stable in the pH range of 2 to 6,

the aqueous dispersion additionally contains at least one compound, which is at least partially soluble in aqueous solution in the pH range 2 to 6 in the form of polyvalent cations, these being stable in a silicate-like environment as an anionic component of the particle surface of the silicon dioxide powder,

the quantity of cation-providing compound in relation to the surface of the silicon dioxide is 0.001 to 0.1 mg cation-providing compound/m^2 silicon dioxide surface, the cation-providing compound being calculated as the oxide, and

the zeta potential of the aqueous dispersion has values of less than or equal to zero.

2. The aqueous dispersion as claimed in claim 1, wherein the cation-providing compound is an amphoteric compound having Be, Zn, Al, Pb, Fe or Ti as its cation, and mixtures of these compounds.

3. The aqueous dispersion as claimed in claim 2, wherein the amphoteric compound is an aluminum compound.

4. The aqueous dispersion as claimed in claim 1, wherein the silicon dioxide powder is a pyrogenically-produced silicon dioxide powder.

5. The aqueous dispersion as claimed in claim 4, wherein the BET specific surface area ranges from 5 to 600 m^2/g.

6. The aqueous dispersion as claimed in claim 1, wherein the pH value ranges from 3 to 5.

7. The aqueous dispersion as claimed in claim 1, wherein the pH of the dispersion is adjusted by the addition of an acid or base thereto.

8. The aqueous dispersion as claimed in claim 7, wherein the acid is hydrochloric acid, sulfuric acid, nitric acid or a C_1-C_4-carboxylic acid and said base is an alkali hydroxide, ammonia, an ammonium salt or an amine.

9. The aqueous dispersion as claimed in claim 1, wherein the viscosity at a shear energy of 1.28 s^{-1} is at least 10 % lower than the viscosity of a dispersion of the same composition that contains no cation-providing compound.

10. The aqueous dispersion as claimed in claim 1, wherein the number of agglomerates with a size greater than 1 μm is at least 50 % lower than that of a dispersion of the same composition that contains no cation-providing compound.

11. The aqueous dispersion as claimed in claim 1, wherein the average secondary particle size of the silicon dioxide powder is less than 200 nm.

12. The aqueous dispersion as claimed in claim 1, wherein the dispersion contains a preservative.

13. A process for the production of the aqueous dispersion as claimed in claim 1, wherein silicon dioxide powder and at least one cation-providing compound in a quantity of 0.001 to 0.1 mg cation-providing compound/m^2 silicon dioxide surface are added to the aqueous dispersion while the dispersion is agitated.

14. The process for the production of the aqueous dispersion as claimed in claim 13, wherein the cation-providing compound is added, in solid form or as an aqueous solution, to an aqueous dispersion of silicon dioxide.

15. The process for the production of the aqueous dispersion as claimed in claim 13, wherein the silicon dioxide powder is added at once, or in portions, to an aqueous solution of the cation-providing compound.

16. The process for the production of the aqueous dispersion as claimed in claim 13, wherein the silicon dioxide powder and cation-providing compound are added to the liquid dispersion phase at the same time, in portions or continuously.

17. A powder consisting of at least one cation-providing compound and silicon dioxide powder, the content of the cation-providing compound, calculated as the oxide, being 0.001 to 0.1 mg cation-providing compound/m^2 silicon dioxide surface.

18. The powder as claimed in claim 17, wherein the cation-providing compound is an aluminum compound and the silicon dioxide is a pyrogenically-produced silicon dioxide powder.

19. A method of chemically-mechanically polishing metal surfaces, comprising:

applying the aqueous dispersion of claim 1 to a metal surface while polishing said surface.

20. A method of producing ink-jet papers, comprising:

incorporating the aqueous dispersion of claim 1 into an ink-jet formulation of the papers.

21. A method of producing gel batteries, comprising:

incorporating the aqueous dispersion of claim 1 into the material of said gel batteries.

22. A method for clarifying/fining wine and fruit, comprising:

incorporating the aqueous dispersion of claim 1 into wine and fruit.

23. A method for improving water-based dispersion paints, comprising:

incorporating the aqueous dispersion of claim 1 into water-based dispersion paints thereby improving the suspension behavior of pigments and fillers in the paints and thereby increasing the scratch resistance of applied paint.

24. A method for improving the color stability of ink-jet inks, comprising:

incorporating the aqueous dispersion of claim 1 into the carbon black dispersions of ink-jet inks, thereby improving the stability of the black coloration of ink-jet ink formulations.

25. A method for stabilizing biocides, comprising:

incorporating the aqueous dispersion of claim 1 into the emulsions and dispersions of biocidal formulations.

26. A method of treating paper and cardboard surfaces, comprising:

treating the surfaces of paper and cardboard with the aqueous dispersion of claim 1 thereby eliminating stickiness of said surfaces to achieve an antislip effect on the paper or cardboard.

27. A method of reinforcing natural latex and synthetic latex, comprising:

incorporating the aqueous dispersion of claim 1 as a reinforcing agent into the natural or synthetic latex.

28. A method of improving slip resistance, comprising:

coating a surface with the aqueous dispersion of claim 1.

29. A method of producing optical fibers and quartz glass, comprising:

forming the optical and quartz glass in the presence of the aqueous dispersion of claim 1.